



**SAMPLE EF-1**  
**R & D PROJECT**

**U.S. DEPARTMENT OF ENERGY**  
**GOLDEN FIELD OFFICE**  
**ENVIRONMENTAL CHECKLIST**  
**(To Be Completed by Potential Recipient)**

**PART I: General Information**

DOE Project Officer: James Alkire

Date: 11/30/2005

**Project Title:** Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Project – Sample Demonstration Project

**ST:** CA

**Organization Name:** XYZ Corporation

**Solicitation Number:** DE-PS-36-03GO93010

**Award No:** DE-FCC36-05GO15997

1. Please describe the intended use of DOE funding in your proposed project. For example, would the funding be applied to the entire project or only support a phase of the project? Describe the activity as specifically as possible, i.e. planning, feasibility study, design, data analysis, education or outreach activities, construction, capital purchase and/or equipment installation or modification. If the project involves construction, also describe the operation of the completed facility/equipment.

XYZ Corporation will use the DOE funding to acquire equipment and construct up to 8 small hydrogen stations, some of which will generate, purify, compress and dispense hydrogen to vehicles and others which will simply store and dispense hydrogen to vehicles. In addition, funds will be expended to acquire, maintain and operate a fleet of up to 38 fuel cell powered vehicles under various climatological, traffic and driver use patterns. Funding will be used to collect and report data from both the hydrogen stations and the vehicles to the DOE and to provide some guidance into the science behind the development of appropriate codes and standards that will be necessary in a true hydrogen economy. A broad education and outreach program will also be developed and implemented during the funding period(s), including community events, mobile and stationary education modules.

This EF1 Environmental Checklist is being completed for the construction and operation of one hydrogen fueling station. This fueling station will be located at the ABC Technical Center property at 12345 East Avenue, Springfield, CA 99599. The ABC Technical Center is a fully permitted developed site under light commercial use. Details for hydrogen production, storage and dispensing systems to be implemented on site are included in the supporting documents uploaded to the NEPA database. The fueling station is expected to serve 8-10 light duty fleet vehicles and will not be open to the general public.

2. Does any part of your project require review and/or permitting by any other federal, state, regional, local, environmental, or regulatory agency? ☒ Yes ☐ No

3. Has any review (e.g., NEPA documentation, permits, agency consultations) been completed?

☒ Yes ☐ No If yes, is a finding or report available and how can a copy be obtained?

The City of Springfield has signed a Mitigated Negative Declaration for the Springfield Site and has filed same with County offices. This document, SPRINGFIELD SITE 99999-2004-07-27-Environmental Letters.pdf, has been uploaded to the NEPA website.

4. Is the proposed project part of a larger scope of work? ☒ Yes ☐ No If yes, please describe.

This project is one of the infrastructure sites that will be constructed and operated under this award. What is described in this document pertains only to this site.

Do you anticipate requesting additional federal funding for subsequent phases of this project?

☐ Yes ☒ No If yes, please describe.

5. Does the scope of your project **only** involve one or more of the following:

- ☐ Information gathering such as literature surveys, inventories, audits,
- ☐ Data analysis including computer modeling,
- ☐ Document preparation such as design, feasibility studies, analytical energy supply and demand studies, or
- ☐ Information dissemination, including document mailings, publication, distribution, training, conferences, and informational programs.

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## PART II: Environmental Considerations

### Section A Conditions or special areas are present, required, or could be affected by your project:

#### 1. Clearing or Excavation

An approximately 2000sf portion of an existing parking lot will be demolished and replaced with a small hydrogen station and new pavement. No previously undeveloped land will be disturbed.

#### 2. Dredge and/or Fill.

No dredging or filling will be conducted as part of this demonstration project as it will be completed at a site that is already developed and under light industrial use.

#### 3. New or Modified Federal/State Permits And/or Requests for Exemptions

City of Springfield Conditional Use Permit  
Building Permit  
Sign Permit  
Fire Permit  
Electrical Permit  
Mechanical Permit  
Environmental Permit  
Plumbing Permit

South Coast Air Quality Management District (received letter of exemption based on project size and project emissions)

#### 4. Pre-Existing Contamination

According to a Phase I Environmental Site Assessment prepared for the property owner, there is no pre-existing contamination at the project site. The summary of the Site Assessment has been uploaded to the NEPA database, and the complete Site Assessment is available upon request.

#### 5. Asbestos

No existing piping or facility (except driveway) will be disturbed; therefore no asbestos will be disturbed or removed as part of this project.

#### 6. Criteria Pollutants

Air emissions modeling for this hydrogen fueling station has determined that 0.59 lbs of Carbon Monoxide will be emitted per day. An exemption from the South Coast Air Quality Board has been granted and no permit will be required. Contact information for the South Coast Air Quality Board is uploaded to the NEPA database as an attachment.

#### 7. Non-Attainment Areas

According to the South Coast Air Quality Region the project is within an extreme non-attainment area for ground level ozone.

#### 8. Class I Air Quality Control Region

Based on consultation with the South Coast Air Quality Board, the project area is not within or near a Class 1 Air Quality Control Region.

#### 9. Navigable Air Space

The project will not impact navigable air space in any way. Nothing taller than the existing structures on the project site will be constructed.

#### 10. Areas with Special Designation

Consultation with the California Division of Land Resource Protection and the State Historic Preservation Officer determined that there are no areas with special designation within or in the vicinity of the project area. Contact information for the Division of Land Resource Protection and SHPO are included in an attachment uploaded to the NEPA database.

#### 11. Prime, Unique or Important Farmland

Consultation with the California Division of Land Resource Protection and use of the Land Evaluation and Site Assessment model, it has been determined that there is no prime, unique, or important farmland within or in the vicinity of the project area.

#### 12. Archeological/Cultural Resources

Based on a consultation with the State Historic Preservation Officer, it has been determined that no archeological or cultural resources are known to exist on this property. The project site is currently developed and under light commercial use.

#### 13. Threatened/Endangered

Based on consultation with California Department of Fish and Game and the US Fish and Wildlife Service it has been determined that there are no rare, threatened, or endangered plant or animal species listed under the California Endangered Species Act or the national Endangered Species Act within or in the vicinity of the project area.

#### 14. Other Protected Species

Based on consultation with California Department of Fish and Game and the US Fish and Wildlife Service it has been determined that there are no protected species within or in the vicinity of the project area.

#### 15. Floodplains

According to the California Department of Water Resources, the project site is not within or adjacent to identified floodplains.



### 16. Special Sources of Groundwater

According to the California Department of Water Resources this project will not have an impact on groundwater. The site is currently developed and under light commercial use.

### 17. Underground Extraction/Injection

This project does not involve any underground extraction or injection.

### 18. Wetlands

Consultation with the California Resources Agency and the California Environmental Resources Evaluation System concluded that no identified wetlands exist within or in the vicinity of the project site.

### 19. Coastal Zones

The California Coastal Commission confirmed that the project area is not within and will not impact any identified coastal zones.

### 20. Public Issues or Concerns

The outreach plan for this project includes townhall events and meetings with local government officials to address public concerns and disseminate information about hydrogen and hydrogen fueling stations. According to the CEQA Negative Declaration (uploaded) the fueling station fits within the goals and policies of the City's adopted General Plan and is in full compliance with the design standards and guidelines contained within the City's Zoning Ordinance.

### 21. Noise

Noise associated with the operation of the hydrogen fueling station will be abated by enclosing equipment in a sound attenuated structure. Additionally, according to analysis conducted for the CEQA review, there are no sensitive receptors in the area as the project site is within a developed commercial center.

### 22. Depletion of a Non-Renewable Resource

Hydrogen will be produced from Natural Gas reforming. Natural Gas is a non-renewable resource. This is a demonstration, not commercial scale, project and the overall depletion of non-renewable resources will be negligible.

### 23. Aesthetics

One small new enclosure and fueling island will be installed onsite. The enclosure and fueling island are designed to blend in with exist light commercial facility and meet all City of Springfield requirements. Site plans were reviewed during the CEQA process and were found to not have any impact on aesthetics (scenic vistas, state scenic highways, visual character of the surround area, or increase lighting that would impact day or nighttime views).

**Section B.** Would your project use, disturb, or produce any chemicals or biological substances? (i.e., pesticides, industrial process, fuels, lubricants, bacteria)

#### 1. Polychlorinated Biphenyls

☐ Permit Required    Quantity: None    Permit Type:

**Specific nature of use:**

No PCBs will be used in this project.

#### 2. Import, Manufacture, or Processing of Toxic Substances

☐ Permit Required    Quantity: None    Permit Type:

**Specific nature of use:**

This project will not require the import, manufacture, or processing of toxic substances.

#### 3. Chemical Storage, Use, and Disposal

☐ Permit Required    Quantity: <500 lbs.    Permit Type:

**Specific nature of use:**

Ethanol will be used as part of the fuel in order to produce hydrogen from a renewable feedstock. Onsite storage will be the < 40 CFR 355 Threshold Planning Quantity.

#### 4. Pesticide Use

☐ Permit Required    Quantity: None    Permit Type:

**Specific nature of use:**

No pesticides will be used in the course of this project.

#### 5. Hazardous, Toxic, or Criteria Pollutant Air Emissions

☐ Permit Required    Quantity: 0.59 lbs/day    Permit Type: exemption granted

**Specific nature of use:**

Air emissions modeling for this hydrogen fueling station has determined that 0.59 lbs of Carbon Monoxide will be emitted per day of operation. An exemption

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from the South Coast Air Quality Board has been granted and no permit will be required.

### 6. Liquid Effluent

☐ Permit Required      Quantity: <30 gallons/day      Permit Type: Permit exemption expected

#### Specific nature of use:

This is water to sewer with Total Organic Content (TOC) ~ 3 mg/L, Total Dissolved Solids (TDS) < 10 mg/L, no toxic pollutants per 40 CFR 129.4 A permit exemption from the City of Springfield is expected. The expected date of notification is 12-01-05. XYZ Corporation will notify DOE Golden Field Office when the exemption is granted

### 7. Underground Extraction/Injection

☐ Permit Required      Quantity:      Permit Type:

#### Specific nature of use:

No underground extraction or injection will be performed as part of this project.

### 8. Hazardous Waste

☐ Permit Required      Quantity: None      Permit Type:

#### Specific nature of use:

No hazardous waste will be generated or disposed of as part of this project.

### 9. Underground Storage Tanks

☐ Permit Required      Quantity: None      Permit Type:

#### Specific nature of use:

According to a Phase I Environmental Site Assessment prepared for the property owner, the project site currently has no USTs. This project will not require the installation of any USTs.

### 10. Biological Materials.

☐ Permit Required      Quantity: None      Permit Type:

#### Specific nature of use:

No biological materials will be used or disposed of as part of this project.

## Section C.      Would your project require or produce any radiological materials?

### 1. Radioactive Mixed Waste

☐ Permit Required      Quantity: None      Permit Type:

#### Specific nature of use:

No radioactive materials will be used or disposed of as part of this project.



**SAMPLE EF-1**  
**DATA COLLECTION**  
**PAPER STUDIES**

U.S. DEPARTMENT OF ENERGY  
 GOLDEN FIELD OFFICE  
 ENVIRONMENTAL CHECKLIST  
 (To Be Completed by Potential Recipient)



**PART I: General Information**

DOE Project Officer: James Alkire

Date: 11/28/2005

Project Title: Plant Wide Assessment for XYZ

ST: NY

Organization Name: XYZ Industries, Inc.

Solicitation Number: DE-PS36-04GO94018

Award No: DE-AC36-99GO10337

1. Please describe the intended use of DOE funding in your proposed project. For example, would the funding be applied to the entire project or only support a phase of the project? Describe the activity as specifically as possible, i.e. planning, feasibility study, design, data analysis, education or outreach activities, construction, capital purchase and/or equipment installation or modification. If the project involves construction, also describe the operation of the completed facility/equipment.

This project is an energy audit activities are limited to site visits, interviews, data collection & analysis, report writing, and training. DOE funding will be applied to the entire project.

A detailed statement of objectives has been uploaded to the NEPA database along with this EF1.

2. Does any part of your project require review and/or permitting by any other federal, state, regional, local, environmental, or regulatory agency? ☐ Yes ☒ No

3. Has any review (e.g., NEPA documentation, permits, agency consultations) been completed?  
☐ Yes ☒ No If yes, is a finding or report available and how can a copy be obtained?

4. Is the proposed project part of a larger scope of work? ☐ Yes ☒ No If yes, please describe.

Do you anticipate requesting additional federal funding for subsequent phases of this project?  
☐ Yes ☒ No If yes, please describe.

5. Does the scope of your project **only** involve one or more of the following:

- ☒ Information gathering such as literature surveys, inventories, audits,
- ☒ Data analysis including computer modeling,
- ☒ Document preparation such as design, feasibility studies, analytical energy supply and demand studies, or
- ☒ Information dissemination, including document mailings, publication, distribution, training, conferences, and informational programs.

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**PART II: Environmental Considerations**

**Section A** Conditions or special areas are present, required, or could be affected by your project:

**Section B.** Would your project use, disturb, or produce any chemicals or biological substances? (i.e., pesticides, industrial process, fuels, lubricants, bacteria)

**Section C.** Would your project require or produce any radiological materials?



**SAMPLE EF-1**  
**DEMONSTRATION**  
**PROJECT**

**U.S. DEPARTMENT OF ENERGY**  
**GOLDEN FIELD OFFICE**  
**ENVIRONMENTAL CHECKLIST**  
**(To Be Completed by Potential Recipient)**



**PART I: General Information**

DOE Project Officer: James Alkire

Date: 11/28/2005

**Project Title:** Investigation of Reaction Networks and Active Sites in Bio-Ethanol Steam Reforming Over Co-Based Catalysts

ST: NY

**Organization Name:** State University

**Solicitation Number:** DE-PS36-03GO93007

**Award No:** DE-FCC36-05GO15998

1. Please describe the intended use of DOE funding in your proposed project. For example, would the funding be applied to the entire project or only support a phase of the project? Describe the activity as specifically as possible, i.e. planning, feasibility study, design, data analysis, education or outreach activities, construction, capital purchase and/or equipment installation or modification. If the project involves construction, also describe the operation of the completed facility/equipment.

The intended use of DOE funds covers the full range of this project (7 tasks as listed below). DOE funds will be used to provide initial capital equipment purchases (Equipment items included in the budget are Gas-Chromatograph, a Quad. Mass spectrometer, Mass Flow Controllers, and a HPLC Liquid pump cost shared 30% by SU) as well as material and supplies costs (chemicals, gases, plumbing items, software and controls) over the course of the project. DOE funds will also be used to provide partial support for personnel working on the project at various stages. The P.I. and one senior research associate will dedicate 20-50% of their time over the course of the project. Over the course of the project, funds will also be used to support two Ph.D. students, one post-doctoral researcher, and two undergraduate researchers. Additional funds will also be used as laboratory access/user fees.

Task 1. Development of experimental and analytical protocols; establishing safety procedures; system "shake-down"; training students; system calibration.

Task 2. Economic and energy analysis.

Task 3. Catalysts formulation, synthesis and optimization.

Task 4. Catalyst characterization studies.

Task 5. Activity tests, kinetic studies, deactivation and regeneration studies.

Task 6. Information dissemination.

Task 7. Literature awareness; data analysis; reproducibility tests.

2. Does any part of your project require review and/or permitting by any other federal, state, regional, local, environmental, or regulatory agency? ☐ Yes ☒ No

3. Has any review (e.g., NEPA documentation, permits, agency consultations) been completed?  
☐ Yes ☒ No If yes, is a finding or report available and how can a copy be obtained?

4. Is the proposed project part of a larger scope of work? ☐ Yes ☒ No If yes, please describe.

Do you anticipate requesting additional federal funding for subsequent phases of this project?

☐ Yes ☒ No If yes, please describe.

5. Does the scope of your project **only** involve one or more of the following:

☐ Information gathering such as literature surveys, inventories, audits,

☐ Data analysis including computer modeling,

☐ Document preparation such as design, feasibility studies, analytical energy supply and demand studies, or

☐ Information dissemination, including document mailings, publication, distribution, training, conferences, and informational programs.



## PART II: Environmental Considerations

**Section A** Conditions or special areas are present, required, or could be affected by your project:

### 1. Clearing or Excavation

No impact - All work performed will be completed in existing laboratory facilities and therefore does not have the potential to affect any environmental conditions in Section A of this Environmental Checklist.

**Section B.** Would your project use, disturb, or produce any chemicals or biological substances? (i.e., pesticides, industrial process, fuels, lubricants, bacteria)

### 2. Import, Manufacture, or Processing of Toxic Substances

☐ Permit Required Quantity: Lab scale Permit Type:

#### Specific nature of use:

All work performed in the project is on the laboratory scale as defined in section 29 of the Code of Federal regulations (29 CFR) PART 1910 - Occupational Safety and Health Standards. The work to be conducted is of the research nature and not intended to be part of a production or manufacture process.

A detailed Process Hazard Analysis (PHA) has been performed and included in the original proposal of the project. Summary providing specifics to the 'yes' answers on Item No. 2, 3, 5, 6, and 8 will be addressed here:

The catalytic reaction of research interest in the project will be conducted at the laboratory scale and will react ethanol, water and diluent (nitrogen) over a solid catalyst to produce a gaseous stream of hydrogen, carbon monoxide, carbon dioxide. Other products, and un-reacted ethanol/water, will be condensed out of the reactant stream and collected as non-flammable laboratory waste. The trace by-products of the reaction present in this stream are expected to be Chemical A, Chemical B, and Chemical C. Additionally, the typical carbon monoxide concentration in the system is expected to be below 1vol% and hazard associated with carbon monoxide have been addressed in the PHA for the scope of the project.

### 3. Chemical Storage, Use, and Disposal

☐ Permit Required Quantity: Lab scale Permit Type:

#### Specific nature of use:

Specific procedures for collecting and disposing of waste will be included in the operator checklists and are present in the PHA. In general, transferring of hazardous waste material will occur only in a properly ventilated area. All waste will be kept in an approved container in a satellite accumulation area congruent to the existing Chemical Hygiene Plan (CHP) of the research group and the Department of Chemical and Biomolecular Engineering. The waste containers will be kept in the satellite accumulation area until pickup by the Environmental Health and Safety personal at the State University.

### 5. Hazardous, Toxic, or Criteria Pollutant Air Emissions

☐ Permit Required Quantity: Lab scale Permit Type:

#### Specific nature of use:

The gaseous product of the reaction studies in this project will be analyzed for composition and expelled through laboratory fume hoods. The small scale of the experiments to be performed will keep the concentrations of gaseous products below any emission standard. However, hazard associated with hydrogen, carbon monoxide, and alcohol/hydrocarbon vapors have been addressed in the PHA of the project. Specifically, administrative procedures, engineering controls (fume hoods, process alarms), and a chemical hygiene plan addressing work with flammables and toxic gases, personal protection equipment are in place to mitigate any risks encountered during the course of the project.

### 6. Liquid Effluent

☐ Permit Required Quantity: Lab scale Permit Type:

#### Specific nature of use:

Any liquid effluent generated from the project will be in the form of condensate liquid containing greater than 50% water. Other materials will include Chemical A, Chemical B, Chemical C. This condensate will be analyzed for composition and treated as laboratory waste as addressed in Item #s 3 and 8.

### 8. Hazardous Waste

☐ Permit Required Quantity: Lab scale Permit Type:

#### Specific nature of use:

Additional laboratory wastes will be generated in the preparation of solid catalysts. These wastes will be collected, stored, and disposed of in a manner congruent to the existing Chemical Hygiene Plan (CHP) of the research group and the Department of Chemical and Biomolecular Engineering. Also, see item #3.

**Section C.** Would your project require or produce any radiological materials?

### 1. Radioactive Mixed Waste

☐ Permit Required Quantity: None Permit Type:

#### Specific nature of use:

No radiological materials will be used or produced in the course of this project.